DWSA + Exp, L.D. (118)

MALLARD FLUOROSCOPY PROJECT

POST-SEASON - 1964 Paris Landing, Tenn

(Report presented to the Mississippi Flyway Technical Section at Paris Landing, Tennessee, on February 19, 1964.)

At the Mississippi Flyway Technical Section meetings held at Port Clinton, Ohio, in February, 1963, a post-season mallard fluoroscopy project was proposed by Cal Barstow (Tennessee). His proposal was based on the need for measuring annual variations in flyway hunting pressure on mallards as influenced by fall population levels and associated regulations. Annual hunting pressure is now determined by a study of band recovery rates, duck stamp sales, kill surveys and duck wing collection survey data. All are essential in assessing flyway gunning pressure.

We suggest that hunting pressure on mallards may be measured quickly and accurately by fluoroscoping representative samples of the wintering population. Development of the wing aging technique permits examination of birds which have been exposed to but one season's hunting pressure. These data should serve as a useful adjunct to presently used techniques.

The project was approved by the Technical Section and by the Flyway Council (August, 1963) for initiation in January, 1964.

A planning meeting was held at Reelfoot National Wildlife Refuge in October, 1963. Attendance included Frank Dibble (Ky.), Dave Donaldson (Ark.), John DeLime (Reelfoot Refuge), Don Hankla (Region 4 office), George Brakhage (Mo.) and Dick Vaught (Mo.). While not at the meeting, Art Hawkins and Dr. W. H. Elder provided valuable information in planning the project.

Sampling areas were selected on the basis of size of wintering population (25,000 plus mallards), feasibility of trapping and location in the flyway. Five areas were selected: Union County Refuge, Illinois; Reelfoot National Wildlife Refuge, Tennessee; Claypool Reservoir (private), Arkansas; White River National Wildlife Refuge, Arkansas; Yazoo National Wildlife Refuge, Mississippi. Through the courtesy of the state of Arkansas and Dave Donaldson, aerial transportation was provided Messrs. Hankla, Vaught and Brakhage to the Claypool and White River areas. Trapping sites were visited and the project was explained to cooperating personnel. The fluoroscopy project was to use ducks routinely trapped for the post-season mallard banding project.

Patuxent Research Center personnel became concerned that temporarily held birds may not survive or behave as those banded and released at the trap site. Rather than jeopardize the post-season mallard banding project, it was agreed that birds would not be held more than three or four days. In practice, very few birds were held over two days.

Equipment was provided by Missouri (generator, truck), University of Missouri, Gaylord Memorial Laboratory (X-ray head, fluoroscope screen, lead-lined box), and Tennessee (generator). The fluoroscoping equipment was mounted in a dark room in the back of a panel truck. Electricity was available at each of the sampling areas and the generators were not needed.

The committee wishes to express its thanks to the following states for providing technical manpower for the fluoroscopy project:

Illinois	George Arthur	January 4 - 8
	Bill Mestal	" "
	Glen Fooke	" 20 - 31
Indiana	Russell Hyer	" 4 - 8
Wisconsin	Dick Hunt	" "
Iowa	Gene Goecks	" 13 - 22
Tennessee	Cal Barstow	" 30 - 31
	Larry McGinn	" " - February 5
Missouri	George Brakhage	" 4 - 19
	Homer McCollum	" 9 - 19
	Dick Vaught	" 18 - February 5
Arkansas	Dave Donaldson	" 10 - " 4

Fluoroscopy activities on the federal refuges in Region 4 were coordinated by Don Hankla, Wildlife Management Biologist. Cooperation was excellent and much appreciated. Bureau personnel involved included Ray McMasters, manager of White River NWR, and his assistant, John Williamson, and Marcus Turner, a local FGMA in charge of banding at Claypool Reservoir. The Fluoroscope Committee is also grateful for the assistance given by duck trapping crews in Illinois and Arkansas: Illinois - Jack Golden, Carlos Poole; Arkansas - C. R. Wilson, Hugh Worden, Austin Arnold, Lowell Hazel, Charley Cooper and Jack Blair.

Data was gathered at Union County Refuge, the Claypool-Bayou DeView area, and at White River NWR. Aging birds was not a problem (questionable immatures were classed as adults) and the equipment functioned properly. Because of inclement weather, difficulty in trapping ducks was experienced at White River NWR and the Claypool Reservoir-Bayou DeView area. Data from these three areas are presented in Table I.

The 1964 field efforts were designed to test the practicality of a post-season fluoroscopy project. The committee feels that success was realized. The data collected in 1964 can be commented on but not analyzed. To our knowledge, there is no comparable information.

In theory, the incidence of body shot in immature birds is a reflection of hunting pressure sustained last season. The incidence of body shot in adults reflects shot accumulated over two or more seasons and, therefore, is of no help in expressing last season's hunting pressure. Further, the "adult" cohort is diluted with a number of birds which were immatures but not readily aged as such, using wing plumage techniques.

Males consistently show a higher incidence of body shot. This is a reflection of selective shooting (save the hens) and larger body size of males.

The data for immature males indicates an increasing incidence of body shot as the birds progress down the flyway. Is this reflecting greater exposure to hunting? Both Arkansas samples indicate a much higher incidence of body shot in males than in females. Does this mean hunters in Arkansas are more selective than Illinois hunters? Or is it sample size?

There appears to be a definite age and sex bias in bait traps. The young/adult age ratio from the traps (3.0:1) was much higher than found in the bag (wing collection survey). Two-thirds of the trapped birds were males. There is no real reason to believe the population is that far from a 50-50 ratio.

In summary, the Fluoroscopy Committee has demonstrated the practicality of obtaining data on the incidence of body shot in mallards exposed to one season's hunting pressure. The data collected warrants a continuation of the project to either prove or disprove its value.

The committee presented the following recommendation for Section approval:

> "That the Technical Section gather a valid sample of shot incidence from immature mallard males in 1965. Samples to be collected from a pre-selected number of wintering concentrations that represent the flyway populations in order to measure the influence of regulations on hunting pressures in the Mississippi Flyway."

The recommendation was approved. Suggestions for 1965 operations will be presented at the August meeting in St. Louis.

FLUOROSCOPY COMMITTEE

Dick Vaught, Chairman
George Brakhage
Merrill Petoskey
Calvin Barstow
Richard Hunt
William Elder

TABLE I. INCIDENCE OF BODY SHOT IN MALLARDS FLUOROSCOPED AT UNION COUNTY REFUGE, CLAYPOOL-BAYOU DE VIEW AND WHITE RIVER REFUGE AREAS, JANUARY 4 - FEBRUARY 4, 1964

	IMMATURE				ADULT*				Total Sample
	Males		Females		Males		Females		
	Number Examined	% With Shot	Number Examined	% With Shot	Number Examined	% With Shot	Number Examined	% With Shot	
Union County Refuge Illinois	602	12.8	502	12.2	177	27.1	27	7.4	1,308
Claypool-Bayou DeView Arkansas	686	15.0	403	10.7	333	31.5	97	20.6	1,519
White River NWR Arkansas	652	16.6	333	10.8	361	32.4	80	23.7	1,426
TOTALS	1940	14.8	1238	11.3	871	31.0	204	20.1	4,253
% of Total Sample	46		29		20		5		

*Includes some immature birds